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(Reaffirmed 1983)

Indian Standard

SPECIFICATION FOR VEGETABLE TANNED HYDRAULIC LEATHER

(*Second Revision*)

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**BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002**

Indian Standard

SPECIFICATION FOR VEGETABLE TANNED HYDRAULIC LEATHER (*Second Revision*)

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Indian Standard
SPECIFICATION FOR
VEGETABLE TANNED HYDRAULIC LEATHER
(*Second Revision*)

0. FOREWORD

0.1 This Indian Standard (Second Revision) was adopted by the Indian Standards Institution on 15 September 1976, after the draft finalized by the Leather Sectional Committee had been approved by the Chemical Division Council.

0.2 Vegetable tanned hydraulic leather is used for making flange leather, cups and pump leather, hydraulic rams, leather rings and for all kinds of gland packing used in hydraulic system of operations.

0.3 This standard was originally published in 1954 and subsequently revised in 1962. In this second revision the requirements for total ash, solvent extractable substance and water soluble substance have been modified. The test methods for assessing the chemical requirements and physical requirements have been referred to the relevant clauses of IS : 580-1960* and IS : 5914-1970† respectively. Further, for sampling scheme IS : 5868-1969‡ has been referred.

0.4 In the preparation of this standard assistance has been derived from the Central Leather Research Institute. Some requirements have been modified in view of the data provided by the Institute.

0.5 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960§. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

*Methods of chemical testing of leather (*first revision*).

†Methods of physical testing of leather.

‡Method of sampling for leather.

§Rules for rounding off numerical values (*revised*).

1. SCOPE

1.1 This standard prescribes the requirements and the methods of sampling and test for vegetable tanned hydraulic leather.

1.1.1 This standard does not include leather intended for oil seals covered by IS : 3020-1976*.

2. TERMINOLOGY

2.1 For the purpose of this standard, the definitions given in IS : 1640-1960† shall apply.

3. REQUIREMENTS

3.1 Raw Material — The material shall be of good quality wet salted buffalo, ox or cow hides having good substance.

3.2 Tanning — The hide shall be tanned with natural vegetable tanning material or their extracts or either of these in combination with syntans. The tanning may be conducted either solely in pits, or in pits and then in drums. The leather shall be fully tanned. A cut made by knife shall be smooth, showing that the inside fibre is compact.

3.2.1 Fungicidal Additive — At the end of tanning operation and before drying, suitable fungicides shall be incorporated in requisite proportions.

3.2.1.1 Fungicides used to promote mildew resistance in the leather shall be effective and non-toxic. The material shall not show any growth of mildew when tested in accordance with LB : 2 of IS : 6191-1971‡.

3.3 Finishing — The material shall be sammed and shaved on the flesh side to the required thickness and then the grain scoured thoroughly. The material shall be suitably dressed with oils or fats to make the finished leather suitable for being moulded into the required shape and design.

3.4 Chemical Requirements — The leather shall comply with the chemical requirements given in Table 1.

*Leathers for oil seals and washers.

†Glossary of terms relating to hides, skins and leather.

‡Methods of micro-biological, colour fastness and microscopical tests for leather.

TABLE 1 CHEMICAL REQUIREMENTS FOR VEGETABLE TANNED HYDRAULIC LEATHER(*Clauses 3.4 and 4.1*)

| SL No. (1) | CHARACTERISTIC (2) | REQUIREMENT (3) | METHOD OF TEST IN IS : 582-1970* (4) |
|---------------|--|--------------------|--|
| i) | Total ash, percent by mass, <i>Max</i> | 2.9 | LC : 3 |
| ii) | Solvent extractable substance, percent by mass, <i>Max</i> | 7.0 | LC : 4 |
| iii) | Water soluble matter, percent by mass, <i>Max</i> | 18.0 | LC : 6 |
| iv) | Insoluble ash, percent by mass, <i>Max</i> | 1.0 | LC : 8 |
| v) | pH of water solubles, <i>Min</i> | 3.5 | LC : 18 |
| vi) | Differential number, <i>Max</i> | 0.6 | LC : 18 |
| vii) | Degree of tannage, <i>Min</i> | 55.0 | LC : 21 |

NOTE — The calculations for SI No. (i) to (iv) shall be done on zero percent moisture basis, the moisture content shall be determined in accordance with LC : 1 of IS : 582-1970*.

*Methods of chemical testing of leather (*first revision*).

3.5 Physical Requirements — The material shall also comply with the physical requirements given in Table 2.

TABLE 2 PHYSICAL REQUIREMENTS FOR VEGETABLE TANNED HYDRAULIC LEATHER(*Clauses 3.5 and 4.1*)

| SL No. | CHARACTERISTIC | REQUIREMENT | METHOD OF TEST IN IS : 5914-1970* (4) |
|--------|---|--|---|
| (1) | (2) | (3) | |
| i) | Shrinkage temperature, <i>Min</i> | 75°C | LP:10 |
| ii) | Water absorption, percent increase in mass†, <i>Max</i> : | | LP:11 |
| | a) in 30 minutes | 45 | |
| | b) in 2 hours | 50 | |
| | c) in 24 hours | 55 | |
| iii) | Crackiness of the grain | Shall not crack | LP:13 |
| iv) | Pipiness of the grain | Shall not show signs of permanent loosening of the grain in the form of wrinkles | — |
| v) | Thickness | As agreed to between the purchaser and the supplier with a tolerance of ± 0.2 mm | LP:2 |

*Method of physical testing of leather.

†The leather shall not be raggy and spongy.

4. TESTS

4.1 The leather shall satisfy the requirements given in Table 1 and Table 2 when tested in accordance with the methods referred to in col 4 of the tables.

5. PACKING AND MARKING

5.1 Packing — The leather shall be packed as agreed to between the purchaser and the supplier.

5.2 Marking — The packages of leather shall be marked with the name of the manufacturer; recognized trade-mark, if any; and number of pieces.

5.2.1 The packages may also be marked with ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control, which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

6. SAMPLING

6.1 The scale of sampling and criteria for conformity of the material to the standard shall be as prescribed in IS : 5868-1969*.

*Methods of sampling for leather.

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